

Applicant: Asami et al.
Serial No.: 09/107,705
Group Art Unit: 2673

PATENT
Docket No. 380153-53

a non-volatile memory unit connected in communication with the CPU, the gas analyzers units, and the sensors through the CPU bus, the non-volatile memory unit capable of storing a connection condition table; and

a control program capable of controlling the gas analyzers and sensors.

11. (New) The apparatus of claim 10 wherein at least one of the gas analyzers is selected from the group consisting of nondispersive infrared analyzers, flame ionization detectors, or chemi-luminescent detectors.

Remarks

The Applicants submit this amendment in connection with the above-identified application in response to the Final Office Action mailed October 1, 2001. Claims 1-9 of the present application are currently pending. In the Final Office Action dated October 1, 2001, claims 1, 5, 6, and 9 were rejected under 35 USC §102(b) and claims 2-4 and 7-8 were rejected under 35 USC §103(a). In this Amendment, the Applicants have amended claims 1 and 5, and added new claims 10 and 11.

For the reasons set forth below, it is submitted that all the claims are in condition for allowance and allowance of the application is respectfully requested.

Rejections under 35 USC §102(b)

In the Final Office Action, claims 1, 5, 6, and 9 were rejected under 35 USC §102(b) as being anticipated by United States Patent No. 5,304,797, issued to the Irie et al. (hereinafter *Irie '797*). The Applicants have amended claims 1 and 5. For the reasons set forth below, the Applicants respectfully traverse the rejection of the pending claims and respectfully submit that the currently pending claims define patentable subject matter over the cited prior art.

The presently claimed invention is directed to a control apparatus for a gas analyzer system and includes a plurality of gas analyzers each having a gas analyzer

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unit with a plurality of outputs for analyzing a respective gas, a plurality of AD converters each having a plurality of inputs respectively connected to the outputs of the gas analyzer unit according to a connection condition, an internal bus connected to an output of each AD converter, a memory unit connected to the internal bus for storing a connection condition table which includes information for the connection condition, a CPU bus connected to the internal bus of each of the gas analyzers, and an analyzer processing unit including a CPU connected to the CPU bus, the CPU operating in accordance with a program for controlling each of the gas analyzers. Figure 1 of the present invention shows the CPU bus 6 connected to the internal bus 7g of the individual gas analyzer units 8-10, respectively. As recited in claims 1, 5, 6, and 9 the CPU bus is connected to the internal bus of the individual gas analyzers, which in turn is connected to the AD converters and non-volatile memory. This configuration enables the CPU to communicate directly with the plurality of AD converters 7a-7e or the non-volatile memory devices 11-13 of the individual gas analyzer units 8-10, thereby permitting increased user control over the gas analyzer system.

The *Irie* '797 reference is directed to a gas analyzer for determining impurity concentration of highly-purified gas and includes an ion source, an ionization device for ionizing a sample gas, an ion species separating device, and a signal processing device. Figure 9 of the *Irie* '797 reference shows an embodiment of the *Irie* '797 device wherein the CPU 50 is connected to the memory units 49a-49c through connections 51a-51c and 52a-52c. In addition, the AD converters 47a-47c are capable of receiving signals from the gas analyzers 46a-46c and providing this information to the memory units 49a-49c.

For a number of reasons the presently claimed invention is patentably distinct from the *Irie* '797 reference. For example, the presently claimed invention includes a CPU bus connected to the internal gas analyzer bus. This is an important component of the presently claimed invention insofar as the connection of the CPU bus to the internal bus enables the CPU to communicate directly with the AD converters or the non-volatile memory units of the individual gas analyzers. In addition, this configuration enables the

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user to obtain enhanced control of the gas analyzer system with a single CPU controlling a plurality of gas analyzers.

In sharp contrast to the presently claimed invention, the *Irie* '797 reference fails to include an internal bus in communication with a CPU bus. In fact, as shown in Figure 9 of the *Irie* '797 reference, direct communication between the CPU and the individual AD converters is not contemplated in the *Irie* '797 device. Rather, the *Irie* '797 reference shows the CPU and the AD converters connected through the memory units, thereby likely resulting in a less controllable system. Moreover, Figure 9 shows the AD converters connection with the memory units as a singular directed communication path, wherein the memory units are incapable of controlling the AD converters. As such, it would appear from Figure 9 the CPU is incapable of providing any control signals to the AD converters, unlike the presently claimed invention which enables the CPU to communicate directly with the AD converters.

For at least the reasons stated above, it is respectfully submitted that claims 1, 5, 6, and 9 are not anticipated by the *Irie* '797 reference. Nor are they rendered obvious thereby.

Rejections under 35 USC §103(a)

In the Office Action, claims 2-4 and 7-8 were rejected under 35 U.S.C. §103(a) as being obvious in view of the *Irie* '797 reference. For the reasons set forth below, the Applicant respectfully traverses the rejections of the pending claims and respectfully submits that these pending claims define patentable subject matter over the cited prior art.

The rejections to claims 2-4 and 7-8 must fail for at least the same reasons as set forth in the traversal of claims 1, 5, 6, and 9 under 35 U.S.C. §102 above. In short, the *Irie* '797 reference fails to disclose or suggest all the elements of the presently claimed invention and, therefore, fails as a primary reference at the outset. In summary, the *Irie* '797 reference fails to teach or suggest a gas analyzer system having a CPU

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bus connected to an internal bus of each gas analyzer, thereby permitting the CPU to directly communicate with the AD converters or the non-volatile memory units of the individual gas analyzers as found in the presently claimed invention. However, the claims 2-4 and 7-8 further distinguish the presently claimed invention over the prior art and thus are independently patentable.

For at least the reasons stated above, it is respectfully submitted that claims 2-4 and 7-8 are not rendered obvious by the *Irie* '797 reference. Nor are they rendered anticipated thereby.

Conclusion

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made.**"

Therefore, it is submitted that all pending claims are in condition for immediate allowance, and such action is respectfully requested. However, if for any reason direct communication with Applicant's attorney would serve to advance prosecution of this case to finality, the Examiner is cordially urged to call the undersigned attorney at the below listed telephone number.

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The Commissioner is authorized to charge any fee which may be required in connection with this Amendment to deposit account No. 16-2230.

Respectfully submitted,

Dated: December 3, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In The Claims:

Please amend claims 1 and 5 as follows, and add new claims :

1. (Amended) Control apparatus for a gas analyzer system, the gas analyzer system including a plurality of gas analyzers each having a gas analyzer unit with a plurality of outputs for analyzing a respective gas, a plurality of AD converters each having a plurality of inputs respectively connected to the outputs of the gas analyzer unit according to a connection condition, [an internal bus connected to an output of each AD converter, and a memory unit connected to the internal bus for storing a connection condition table which includes information for the connection condition,] said control apparatus comprising:

an internal bus connected to an output of each AD converter;

a memory unit connected to the internal bus for storing a connection condition table which includes information for the connection condition;

a CPU bus connected to [said]the internal bus of each of the gas analyzers; and
an analyzer processing unit including a CPU connected to [said]the CPU bus,
[said]the CPU operating in accordance with a program for controlling each of [said]the
gas analyzers.

5. (Amended) A method for controlling a gas analyzer system, [the gas analyzer system including a plurality of gas analyzers each having a gas analyzer unit with a plurality of outputs for analyzing a respective gas, a plurality of AD converters each having a plurality of inputs respectively connected to the outputs of the gas analyzer unit according to a connection condition, an internal bus connected to an output of each AD converter, and a memory unit connected to the internal bus for storing a connection condition table which includes information for the connection condition,] said method comprising:

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providing the gas analyzer system including a plurality of gas analyzers each having a gas analyzer unit with a plurality of outputs for analyzing a respective gas, a plurality of AD converters each having a plurality of inputs respectively connected to the outputs of the gas analyzer unit according to a connection condition, an internal bus connected to an output of each AD converter, and a memory unit connected to the internal bus for storing a connection condition table which includes information for the connection condition;

providing an analyzer processing unit including a CPU connected to a CPU bus such that said CPU bus is connected to the internal bus of each of the gas analyzers;

reading with said CPU the connection condition table stored in the memory unit of the gas analyzers;

reading with said CPU a signal input to the AD converter in the gas analyzers in accordance with the connection condition table stored in the memory unit, thereby reading out the input from the gas analyzer unit which outputs respectively different signals.

10. (New) Control apparatus for a gas analyzer system, the gas analyzer system including a plurality of gas analyzers each having gas analyzer units and sensors for analyzing a respective gas, a plurality of AD converters each having a plurality of inputs respectively connected to the outputs of the gas analyzer units and sensors, and an analyzer processing unit connected to the plurality of gas analyzers, the control apparatus comprising:

a CPU to control each gas analyzer;

a CPU bus to connect the CPU, each gas analyzer, and the plurality of AD converters;

a non-volatile memory unit connected in communication with the CPU, the gas analyzers units, and the sensors through the CPU bus, the non-volatile memory unit storing a connection condition table; and

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a control program capable of controlling the gas analyzers and sensors.

11. (New) The apparatus of claim 10 wherein at least one of the gas analyzers
is selected from the group consisting of nondispersive infrared analyzers, flame
ionization detectors, or chemi-luminescent detectors.